

## CLAIMS

WHAT IS CLAIMED IS:

1. A shaft sealing system for use in an annular shaped seal cavity of a rotary mechanical device including an impeller driven by a rotating shaft coupled to a motor,  
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a substantially rigid cylindrical body dimensioned to fit into the seal cavity and having an outer surface and an inner bore closely dimensioned to fit over the shaft at the impeller end of the seal cavity; and

the cylindrical body having a cylindrical outer wall formed with a groove at the motor end and an internal groove in the inner bore at the location of the outer groove to form an integral lantern ring with at least one hole connecting the inner groove and outer groove for passage of seal water.

2. The shaft sealing system of claim 1, wherein the body is formed of a non-ferrous metal material.

3. The shaft sealing system of claim 1, wherein the body is formed from a molybdenum and carbon filled thermoplastic material.

4. The shaft sealing system of claim 1, wherein the width of the outer groove at the motor end is narrower than the length of cylindrical outer wall at the impeller end.

5. The shaft sealing system of claim 1, wherein the cylindrical body is split along a  
20 center-line.

6. The shaft sealing system of claim 5, wherein corresponding alignment holes are formed in each side of the split seal and alignment pins are positioned in the alignment holes.

7. The shaft sealing system of claim 1, wherein the outer surface of cylindrical body includes a groove with an O-ring disposed therein.

8. The shaft sealing system of claim 1, further including at least one compressible packing ring disposed on the motor side of the rigid body in the seal cavity.  
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9. The shaft sealing system of claim 1, wherein the rotary device is a rotary pump.

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